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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,469	04/08/2004	Matthias Mrosik	10191/3605	1079

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EXAMINER	
KIRKLAND III, FREDDIE	
ART UNIT	**PAPER NUMBER**
2855	

DATE MAILED: 02/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/821,469	MROSIK ET AL.	
	Examiner	Art Unit	
	Freddie Kirkland III	2855	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 December 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Final Office Action

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,2,6 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Seekircher et al. U.S. Patent 5,811,671.

With respect to claims 1 and 8, the Seekircher et al. reference teaches a method for testing a fuel metering system comprising: checking injector contacts by a control unit during an initialization phase prior to starting up the fuel metering system (col. 6 lines 9-25, voltages are applied to the injection valves by the control unit then a sensed magnetic field is read by the control unit to confirm that the injection valve is connected correctly); driving injectors by the control unit for testing (col. 4 lines 13-16, engine control unit being part of engine 1 generates the control signals for actuating the injection valves 2a and 2b); evaluating at least one of (a) current values and (b) voltage values to detect errors (col. 6 lines 9-25, magnetic fields, which is generated by current, are generated by the solenoids on the injection valves are used by the control unit to confirm a proper connection between a injection valve and control unit); and controlling a fuel metering by the control unit during operation, wherein only the control unit performs the checking, driving, evaluating, and controlling steps (col. 4 lines 13-16, in

the normal engine operation, an engine control unit being part of engine 1 generates the control signals for actuating the injection valves 2a and 2b).

With respect to claim 2, the reference teaches carrying out a test once prior to startup, prior to a first startup (col. 6 lines 9-25, voltages are applied to the injection valves by the control unit then a sensed magnetic field is read by the control unit to confirm that the injection valve is connected correctly, this test is ran prior before every startup).

With respect to claim 6, the reference teaches detecting of errors includes a check for at least one of a short-circuit, an interruption and a polarity reversal of lines (col. 2 lines 45-52, testing of the electrical connection of the injection valves including whether the injection valves are connected correctly).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Seekircher et al U.S. Patent 5,811,671 in view of Hemmerlein et al. 6,293,251 B1.

With respect to claim 3, the Seekircher et al. fails to teach carrying out a test when a speed variable is less than a threshold value.

Hemmerlein et al. teaches an apparatus and method for diagnosing erratic pressure sensor operation in a fuel system of an internal combustion engine comprising a reference speed calculation block 94 that is responsive to the fueling request value to determine a speed indicative of a desired engine speed. The reference speed is then provided to an engine speed control loop that produces a fuel command value based on the reference speed and the actual engine speed (col.5 lines 4-11).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was to have used the method taught by Hemmerlein et al. in the method of Seekircher et al. in order to detect faults in the fuel system.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Seekircher et al U.S. Patent 5,811,671 in view of Pauli et al U.S. Patent 5,633,458.

With respect to claim 4, Seekircher fails to teach carrying out a test when a rail pressure variable is less than a threshold value.

Pauli et al. teaches an on board fuel delivery diagnostic system that records that pressure in the fuel system at the end of a injector actuation then this pressure is compared to with an acceptable pressure data stored in memory. If the pressure is within the range then the controller determines the injector is functioning properly.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the method taught by Pauli et al. in the

method of Seekircher et al. in order to detect faults in the fuel system and determine if the injector is functioning properly.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Seekircher et al U.S. Patent 5,811,671 in view of Weiland U.S. Patent 6,754,604 B2.

With respect to claim 5, Seekircher fails to teach carrying out a test when a voltage variable is greater than a threshold value.

Weiland teaches a method and apparatus for diagnosing fuel injectors that identifies sample voltage signals from fuel injectors then compares these signals with threshold values (col. 6 lines 41-47).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the method taught by Weiland in the method of Seekircher et al. in order to easily and conveniently determine the operation of the fuel injectors (col. 1 lines 47-48).

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Seekircher et al U.S. Patent 5,811,671 in view of Di Leo et al. U.S. Patent 6,085,142.

With respect to claim 7, Seekircher et al. fail to teach during a test, connecting the control unit to a diagnostic tester via which at least one of (a) the test is started and (b) results of the test are at least one of read-out and displayed.

Di Leo et al. teaches a method for fuel a injection system where the control unit ECU also has a diagnostic socket PD enabling it to be connected to external processing devices (col. 4 lines 54-57).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the method taught by Di Leo et al in the method of Seekircher in order to make diagnosis of the fuel metering system easier.

Response to Arguments

Applicant's arguments filed 12/22/2005 have been fully considered but they are not persuasive.

The applicant argues that "the claimed invention requires no additional built-on accessories, and the claims have been amended to reflect this aspect. The control device used for the control carries out the method for testing the injectors. To this end, the conventional control device applies current and voltage to the injectors and analyzes the resulting voltage and/or current (page 4 of remarks)." Also that "since the diagnosis tester carries out additional tests within the frame at the end of the engine installation, it may also not be considered an additional component. That means that the testing requires no elements; the already present elements (control device with end stage diagnosis and the diagnosis tester) carry out the testing (page 4 of remarks)." The applicant fails to point out in the claims how his invention is patentably distinguished over the Seekircher teaching. The control unit 9 from the Seekircher teaching performs the checking, driving, evaluating, and controlling steps (along with the other claimed steps as stated above in the restated rejection), which is what the applicant submitted as an amendment. The examiner understands the applicants arguments, however it is the examiners duty to give the claims the broadest reasonable interpretation and the

Seekircher teaching still anticipates the claims that were submitted in the amendments filed on 12/22/2005.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Freddie Kirkland III whose telephone number is 571-272-2232. The examiner can normally be reached on Monday through Friday 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

FKIII

02/20/2006

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